



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

$$\left(1 - \frac{1}{2^{2n}}\right)S = 1 + \frac{1}{3^{2n}} + \frac{1}{5^{2n}} + \dots;$$

$$\left(1 - \frac{1}{2^{2n}}\right)\left(1 - \frac{1}{3^{2n}}\right)S = 1 + \frac{1}{5^{2n}} + \frac{1}{7^{2n}} + \dots;$$

all of the terms of the form  $1/(2p)^{2n}$  being removed.

$$\text{Ultimately, } \left[\left(1 - \frac{1}{2^{2n}}\right)\left(1 - \frac{1}{3^{2n}}\right)\left(1 - \frac{1}{5^{2n}}\right)\dots\right]S = 1."$$

Let  $S=S_1$  when  $n=1$ ; then equation (1) becomes

$$\pi^2 = 6S_1 = 6 \cdot \frac{1}{1 - \frac{1}{2^2}} \cdot \frac{1}{1 - \frac{1}{3^2}} \cdot \frac{1}{1 - \frac{1}{5^2}} \dots = 6 \frac{2^2}{2^2 - 1} \cdot \frac{3^2}{3^2 - 1} \cdot \frac{5^2}{5^2 - 1} \dots$$

It is plain into what general form all of Bernoulli's Numbers of the form given by Boole, viz:

$$B_{2n-1} = \frac{2(2n)!}{(2\pi)^{2n}} \left[1 + \frac{1}{2^{2n}} + \frac{1}{3^{2n}} + \dots\right],$$

can be thrown.

Also solved by F. Andereg, and G. B. M. Zerr.

## GEOMETRY.

276. Proposed by G. I. HOPKINS, Manchester, N. H.

$ABC$  is an equilateral triangle whose vertices are the centers of circles with radius  $AB$ , and  $H$  is the center of the arc  $AB$ . From  $F$ , the point of intersection of the circles whose centers are  $A$  and  $C$ , a line is drawn through  $H$  to the circumference  $CAN$ . Draw  $BN$ , and prove that the angle  $ABN$  is an angle of a regular pentagon.

Solution by G. B. M. ZERR, A. M., Ph. D., Parsons, W. Va.

Let  $BN=AB=AC=BC=a$ . Then  $BF=a\sqrt{3}$ ,  $\angle ABF=\pi/6$ ,  $\angle HFB=\pi/12$ .  $\therefore \angle HDB=\pi/4$ .

$$BN : BF = \sin \pi/6 : \sin N; a : a\sqrt{3} = \sin \pi/6 : \sin N.$$

$$\therefore \sin N = \sqrt{3} \sin \pi/6 = \frac{3-\sqrt{3}}{2\sqrt{2}} = .44828.$$

$\therefore N=26^\circ 38'$ .  $\therefore \angle ABN=108^\circ 22'$ , or  $22'$  larger than the angle of a regular pentagon. The construction thus gives merely a rough approximation.

Also solved by L. E. Newcomb, and J. Scheffer.